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Sub: Titanium Metals WEST VIRGINIA PORTION

CERCLIS:

Job: 030-0035106

Site Longitude: 80-36-28 80.607780
Site Latitude : 40-26-49 40.446949

The CENTRACTS report below identifies the population, households, and private water wells of each Block Group that lies within, or partially within, the 4, 3, 2, 1, .5, and .25, mile "rings" of the latitude and longitude coordinates above. CENTRACTS may have up to ten radii of any length. 1000 block groups, and 15000 block group sides.

CENTRACTS uses the 1990 Block Group population and Block Group house count data found in the Census Bureau's 1990 STF-1A files. The sources of water supply data are from the Bureau's 1990 STF-3A files. The boundary line coordinates of the Block Groups were extracted from the Census Bureau's 1990 TIGER/Line Files.

CENTRACTS reports are created with programs written by Frost Associates, P.O. Box 495, Essex, Conn. The code was written using Microsoft's Quick-Basic Ver. 4.5.

Latitude and Longitude coordinates identifying a site are entered in degrees and decimal degrees. One or more county files holding Block Group boundary lines are selected for use by CENTRACTS by determining whether the site coordinates fall within the minimum and maximum Lat\Lon coordinates of each county in the state.

Each Block Group line segment has Lat\Lon coordinates representing the "From" and "To" ends of that line. All coordinates from the selected county files are read and converted from degrees, decimal degrees to X\Y miles from the site location. Each line segment is then examined whether it lies within or partially within the maximum ring from the site.

The unique Block Group ID numbers of each line segment that lie within the maximum ring are retained. All Block Group boundary lines matching the Block Group numbers are then extracted from the respective county files to obtain all sides of the included Block Groups. Boundary records are then sorted in adjacent side order to determine the shape and area of each Block Group polygon.

A method to solve for the area of a polygon is to take one-half the sum of the products obtained by multiplying each X-coordinate by the difference between the adjacent Y-coordinates. For a polygon with coordinates at adjacent angles A, B, C, D, and E. The formula can be expressed:

Area = 1/2{Xa(Ye-Yb)+ Xb(Ya-Yb)+ Xc(Yb-Yd)+ Xd(Yc-Ye)+ Xe(Yd-Ya)}

For each ring, the selected Block Groups will be inside, outside, or intersected by the ring. When a polygon is intersected, the partial Block Group area within that ring is calculated using the method described below.

When a ring intersects a Block Group, the intersect points are solved and plotted at the points where the ring enters and exits the shape. The chord line, a line within the circle connecting the intersect points is determined. This chord line is used to calculate the segment area, the half moon shape between the chord line and the ring, and the sub-polygon created by the chord line and the Block Group boundaries that lie outside the ring.

The segment area is subtracted from the sub-polygon area to determine the area of the sub-polygon outside the ring. The area outside the ring is then subtracted from the area of the entire polygon to arrive at the inside area. This inside area is then divided by the tract's total area to determine the percentage of area within the ring. This process is repeated for each block group that is intersected by one of the rings. The total area, partial area, and percentage of partial area of those block groups within, or partially within a ring, are held in memory for the report.

On occasion, the algorithm described above is unable to determine the area of the partial area. Within the report program is a "Paint" routine which allows an enclosed shape to be highlighted. Another routine calculates the percentage of highlighted screen pixels to the pixels within the polygon. A manual entry is allowed. Both the "paint" method and manual entry method over ride the calculated method.

CENTRACTS lists, starting on page 4, all Block Groups in State, County, Census Tract, and Block Group ID order that lie within, or partially within, the maximum ring. Each Block Group is identified by a City or Town name and by the Block Group's State, County, Tract and Block Group ID number. Following is the Block Group's 1990 populu tion and house count extracted from the Census Bureau's 1990 STF-1A files.

The next four columns display water source data from the 1990 STF-3A files. The first column is "Units with Public system or private company source of water", followed by "Units with individual well, Drilled, source of water"; "Units with individual well, Dug, source of water" and "Units with Other source of water".

For each ring, CENTRACTS then shows the Block Groups that are within that ring, the Block Group's total area in square miles, the partial area of the Block Group within that ring, and the partial percentage within the ring. The areas of the included Block Group and the partial areas are then totaled.

The last section tallies the demographic data within each ring. The percentage of area for each Block Group is multiplied times the census data for that Block Group and totaled for all Block Group's within the ring. Ring totals are then determined by subtracting the three mile data from the four mile, the two mile from the three mile, one from the two, etc... Population on private wells is calculated using the formula: ((Drilled + Dug Wells) / Households) * Population

No.	City	Block Group ID	Blk Grp People	House Holds	Public Water	Drilled Wells	Dug Wells	Other
1	Weirton	54009 0301 1	1371	588	564	0	0	0
2	Weirton	54009 0302 1	1133	625	663	0	0	0
3	Weirton	54009 0302 2	348	168	171	0	0	0
4	Weirton	54009 0308 9	1066	458	366	14	77	0
5	Weirton	54009 0311 5	1691	600	465	6	56	28
6	Clay	54029 0201 1	868	354	338	0	0	0
7	Clay	54029 0201 2	969	405	390	0	0	0
8	Clay	54029 0202 1	708	349	372	0	0	0
9	Clay	54029 0202 2	1326	649	667	0	0	0
10	Clay	54029 0203 1	32	26	30	0	0	0
11	Clay	54029 0204 1	1315	531	538	0	0	0
12	Clay	54029 0204 2	120	71	67	0	0	0
13	Clay	54029 0205 1	1935	802	761	6	6	0
14	Clay	54029 0205 2	821	355	354	0	0	0
15	Butler	54029 0206 1	2236	927	929	0	0	0
16	Butler	54029 0206 2	2461	969	965	0	0	0
17	Butler	54029 0206 3	130	60	75	0	0	0
18	Butler	54029 0207 1	616	268	250	0	0	0
19	Butler	54029 0207 2	843	355	317	8	5	0
20	Butler	54029 0207 3	548	259	267	0	0	7
21	Butler	54029 0207 4	906	360	340	0	5	0
22	NOT IDENTIFIED	54029 0208 1	2287	1027	1052	11	7	0
23	Clay	54029 0211 1	1012	372	368	0	14	0
24	Clay	54029 0211 2	374	140	73	0	53	7
25	Clay	54029 0211 3	1842	671	285	7	337	49
26	Clay	54029 0211 9	3044	1136	739	17	328	59
27	Clay	54029 0212 1	128	48	47	0	0	0
28	Clay	54029 0212 2	801	390	379	0	2	2
29	Clay	54029 0212 3	434	193	199	0	0	2
	Totals:		31365	13156	12031	69	890	154

City	Census Tract ID		Tract People	House Count	Public Water	Drilled Wells	Dug Wells	Other Wells
Butler	54029 0206	1	2236	927	929	0	0	0
Butler	54029 0206	2	2461	969	965	0	0	0
Butler	54029 0206	3	130	60	75	0	0	0
Butler	54029 0207	1	616	268	250	0	0	0
Butler	54029 0207	2	843	355	317	8	5	0
Butler	54029 0207	3	548	259	267	0	0	7
Butler	54029 0207	4	906	360	340	0	5	0
	Sub Totals:		7740	3198	3143	8	10	7
Clay	54029 0202	1	708	349	372	0	0	0
Clay	54029 0202	2	1326	649	667	0	0	0
Clay	54029 0203	1	32	26	30	0	0	0
Clay	54029 0204	1	1315	531	538	0	0	0
Clay	54029 0204	2	120	71	67	0	0	0
Clay	54029 0205	1	1935	802	761	6	6	0
Clay	54029 0205	2	821	355	354	0	0	0
Clay	54029 0212	3	434	193	199	0	0	2
Clay	54029 0211	1	1012	372	368	0	14	0
Clay	54029 0211	2	374	140	73	0	53	7
Clay	54029 0211	3	1842	671	285	7	337	49
Clay	54029 0211	9	3044	1136	739	17	328	59
Clay	54029 0201	1	868	354	338	0	0	0
Clay	54029 0201	2	969	405	390	0	0	0
Clay	54029 0212	2	801	390	379	0	2	2
Clay	54029 0212	1	128	48	47	0	0	0
	Sub Totals:		15729	6492	5607	30	740	119
NOT IDENTIFIED	54029 0208	1	2287	1027	1052	11	7	0
	Sub Totals:		2287	1027	1052	11	7	0
Weirton	54009 0302	1	1133	625	663	0	0	0
Weirton	54009 0311	5	1691	600	465	6	56	28
Weirton	54009 0302	2	348	168	171	0	0	0
Weirton	54009 0308	9	1066	458	366	14	77	0
Weirton	54009 0301	1	1371	588	564	0	0	0
	Sub Totals:		5609	2439	2229	20	133	28

For Radius of 4 Mi., Circle Area = 50.265482

No.	City	Block Group ID	Total Area	Partial Area	% Within Radius
1	Weirton	54009 3011	0.289367	0.286890	99.14
2	Weirton	54009 3021	1.383881	0.462543	33.42
3	Weirton	54009 3022	0.142420	0.064887	45.56
4	Weirton	54009 3089	5.062136	0.044020	0.87
5	Weirton	54009 3115	6.953171	0.367223	5.28
6	Clay	54029 2011	2.100065	2.100065	100.00
7	Clay	54029 2012	0.114004	0.114004	100.00
8	Clay	54029 2021	0.405670	0.405670	100.00
9	Clay	54029 2022	0.497999	0.497999	100.00
10	Clay	54029 2031	0.294664	0.294664	100.00
11	Clay	54029 2041	0.425579	0.425579	100.00
12	Clay	54029 2042	0.217423	0.217423	100.00
13	Clay	54029 2051	1.518736	1.518736	100.00
14	Clay	54029 2052	1.059924	1.059924	100.00
15	Butler	54029 2061	1.334849	0.018774	1.41
16	Butler	54029 2062	1.618617	1.419675	87.71
17	Butler	54029 2063	0.024966	0.024966	100.00
18	Butler	54029 2071	0.071440	0.071440	100.00
19	Butler	54029 2072	0.916720	0.660493	72.05
20	Butler	54029 2073	0.093971	0.093971	100.00
21	Butler	54029 2074	0.484361	0.484361	100.00
22	NOT IDENTIFIED	54029 2081	1.193777	0.068178	5.71
23	Clay	54029 2111	3.219500	0.343218	10.66
24	Clay	54029 2112	6.516246	4.100633	62.93
25	Clay	54029 2113	16.615225	0.017867	0.11
26	Clay	54029 2119	11.594986	9.613020	82.91
27	Clay	54029 2121	0.138819	0.035436	25.53
28	Clay	54029 2122	1.045493	0.856562	81.93
29	Clay	54029 2123	0.176431	0.136248	77.22
	Totals:		65.510437	25.804466	

For Radius of 3 Mi., Circle Area = 28.274334

No.	City	Block Group ID	Total Area	Partial Area	% Within Radius
6	Clay	54029 2011	2.100065	1.497455	71.31
8	Clay	54029 2021	0.405670	0.237554	58.56
9	Clay	54029 2022	0.497999	0.011117	2.23
10	Clay	54029 2031	0.294664	0.294664	100.00
11	Clay	54029 2041	0.425579	0.326132	76.63
12	Clay	54029 2042	0.217423	0.154911	71.25
13	Clay	54029 2051	1.518736	1.518736	100.00
14	Clay	54029 2052	1.059924	1.059924	100.00
16	Butler	54029 2062	1.618617	0.532035	32.87
17	Butler	54029 2063	0.024966	0.024966	100.00
18	Butler	54029 2071	0.071440	0.013068	18.29
20	Butler	54029 2073	0.093971	0.088438	94.11
21	Butler	54029 2074	0.484361	0.060227	12.43
24	Clay	54029 2112	6.516246	1.170129	17.96

26	Clay	54029 2119	11.594986	6.253772	53.94
28	Clay	54029 2122	1.045493	0.242023	23.15
29	Clay	54029 2123	0.176431	0.025140	14.25
	Totals:		28.146570	13.510293	

For Radius of 2 Mi., Circle Area = 12.566371

No.	City	Block Group ID	Total Area	Partial Area	% Within Radius
6	Clay	54029 2011	2.100065	0.514083	24.48
10	Clay	54029 2031	0.294664	0.175477	59.55
13	Clay	54029 2051	1.518736	0.524063	34.51
14	Clay	54029 2052	1.059924	1.059924	100.00
24	Clay	54029 2112	6.516246	0.072724	1.12
26	Clay	54029 2119	11.594986	3.336100	28.77
	Totals:		23.084621	5.682370	

For Radius of 1 Mi., Circle Area = 3.141593

No.	City	Block Group ID	Total Area	Partial Area	% Within Radius
14	Clay	54029 2052	1.059924	0.739539	69.77
26	Clay	54029 2119	11.594986	0.607231	5.24
	Totals:		12.654910	1.346770	

For Radius of .5 Mi., Circle Area = 0.785398

No.	City	Block Group ID	Total Area	Partial Area	% Within Radius
14	Clay	54029 2052	1.059924	0.264394	24.94
26	Clay	54029 2119	11.594986	0.022189	0.19
	Totals:		12.654910	0.286583	

For Radius of .25 Mi., Circle Area = 0.196350

No.	City	Block Group ID	Total Area	Partial Area	% Within Radius
14	Clay	54029 2052	1.059924	0.046632	4.40
	Totals:		1.059924	0.046632	

========== Site Data ==========

Population:	19110.03
Households:	8121.57
Drilled Wells:	26.93
Dug Wells:	327.41
Other Water Sources:	65.03

========== Partial (RING) data ==========

---- Within Ring: 4 Mile(s) and 3 Mile(s) ----

Population:	10529.47
Households:	4538.11
Drilled Wells:	11.76
Dug Wells:	133.90
Other Wells:	24.62

** Population On Private Wells: 337.97

---- Within Ring: 3 Mile(s) and 2 Mile(s) ----

Population:	5980.32
Households:	2521.16
Drilled Wells:	8.21
Dug Wells:	96.48
Other Wells:	23.36

** Population On Private Wells: 248.31

---- Within Ring: 2 Mile(s) and 1 Mile(s) ----

Population:	1867.98
Households:	755.11
Drilled Wells:	6.07
Dug Wells:	79.86
Other Wells:	13.96

** Population On Private Wells: 212.57

---- Within Ring: 1 Mile(s) and .5 Mile(s) ----

Population:	521.63
Households:	216.46
Drilled Wells:	0.86
Dug Wells:	16.55
Other Wells:	2.98

** Population On Private Wells: 41.95

---- Within Ring: .5 Mile(s) and .25 Mile(s) ----

Population:	174.50
Households:	75.11
Drilled Wells:	0.03
Dug Wells:	0.63
Other Wells:	0.11

** Population On Private Wells: 1.53

---- Within Ring: .25 Mile(s) and 0 Mile(s) ----

Population:	36.12
Households:	15.62
Drilled Wells:	0.00
Dug Wells:	0.00
Other Wells:	0.00

** Population On Private Wells: 0.00

** Total Population On Private Wells: 842.34

February 22, 1995